

Ecological Form

SYSTEM AND AESTHETICS
IN THE AGE OF EMPIRE

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INTRODUCTION

Ecological Formalism; or,
Love Among the Ruins

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Subjection of Nature's forces to man, machinery, application of chemistry to industry and agriculture, steam-navigation, railways, electric telegraphs, clearing of whole continents for cultivation, canalisation of rivers, whole populations conjured out of the ground—what earlier century had even a presentiment that such productive forces slumbered in the lap of social labour?

—KARL MARX AND FRIEDRICH ENGELS, *The Communist Manifesto* (1848)

In the gloom she did not mind speaking freely.

—THOMAS HARDY, *Tess of the D'Urbervilles* (1891)

For Marx and Engels in 1848, European modernity was a world-demolishing juggernaut, an engine of vast productivity and vaster catastrophe. To these most sensitive observers of contemporary life, the new industrial age, powered by burned coal and the brute labor of newly urbanized masses, was most recognizable as a terraforming project. Altered chemistry, moved earth, rerouted rivers: Capitalism was a continent-clearing attack on nature at world scale, a magic act by which plants, wealth, and even human populations could be created as though from nothing—"conjured out of the ground." In this steam-driven and electrified present, humankind or an empowered subset of it, enriched by extraction and aided by machine technology, could enslave the very forces of nature (*Naturkräfte*), and, like Xerxes whipping the Hellespont in Herodotus's famous parable of outlandish pride, alter the flow of waters on earth. Modernity's self-inflicted demise was incipient or imminent to Marx and Engels: They anticipated the bourgeois world's terminal crisis as future revolution, augured in stories of chastened hubris and tragedy inherited from the Greeks.

To twenty-first-century observers, by contrast, the generalized death drive of western life is palpable, legible, here and now. The earth and its

interlocked systems now seem a material laboratory for proving not just Marx's observation about capitalism's tendency toward suicide, but also Freud's late-career discovery, stunning even to himself, that a sentient organism might somehow desire, and then willingly pursue, its own destruction.¹ Ice shelves collapse and glaciers retreat; particulate plastic swirls in eddies the size of continents; species vanish at rates not seen since an asteroid restarted the clock of evolution; and the weather of our daily lives is a coded message that we have altered the world forever. But despite being locked into this "terminal crisis of the Holocene," we charge onward, unwilling or unable to replace the languages of growth, mastery, and progress we inherit from the era of Marx and Freud.² "It is painful to say," explains Jeremy Davies, "that efforts to keep climate change to even minimally tolerable levels may well be futile by now. . . . [T]he feedback mechanisms already triggered mean that no human power whatsoever can halt the changes that are now under way."³ The world-enslaving omnipotence Marx and Engels ambiguously celebrated has transformed into its opposite, helplessness, and as though fulfilling Victorian prophecies modernity seems to have dug its own grave.

Ecological Form is about how we might think about the nineteenth century—about how we *need* to do so—as we come to terms with a damaged and seemingly diminished present. What can the Age of Coal tell us about the Age of Man? What messages might speak across the divide that separates the subjection (*Unterjochung*) Marx identified in London and Manchester from our own moment of catastrophic mastery? And in what ways does the legacy of extractive imperialism in the nineteenth century continue to shape experience now? In his crucial and early effort to think environmental and colonial histories together, Rob Nixon refers us to "the long dyings—the staggered and staggeringly discounted casualties, both human and ecological," that modernity leaves behind.⁴ These dyings are the necessary aftereffects of an economic order that, by design, sees the nonhuman world as a theater for accumulation, dispossession, and capture: We could call it neoliberal ecocide. The past becomes new from the vantage of every present, and each age sees itself in what came before. But as Nixon points out, and as our own daily experience verifies, the disastrous modernity that so shocked Marx and Engels lives with us still.

Victorian England was both the world's first industrial society and its most powerful global empire: The nineteenth century therefore stands as the origin of not just the irreversible ecological degradation we have inherited from our nineteenth-century forebears, but also the global interconnection and vast asymmetries of power that are the legacies of the British

Empire in the present. Given that the Victorian Empire's world-spanning configuration was the first political project in history to be powered almost exclusively by fossilized plant life, it follows that the carbon-saturated atmosphere we breathe today is, in both metaphorical and brutally chemical senses, the atmosphere of the British Empire.

The fact that we inhabit this extended carbon modernity makes impossible any simple attempt to cleave then from now, them from us. The increasingly lethal pH levels of world oceans, for example, which now bleach to death the coral reefs that in 1842 charged Charles Darwin with an almost erotic excitement, are rising because ocean water—operating at timescales only unevenly synchronized with the other human and earth biorhythms to which it is linked—continues to assimilate CO₂ from fuel burned since the days when chimneys choked the residents of Manchester.⁵ These same seas now rise to drown out precarious populations of subsistence farmers and fishermen in places like, say, the floodplains of Bangladesh, a Muslim-majority nation born in the catastrophic 1947 Partition of Bengal. Such thoroughly modern crises sit at the juncture of demography, political economy, and climate change, and have as their condition of possibility the geopolitical and demographic carving-up accomplished by the British Empire. The uncanny but perversely material presence of the Victorian era's coal-fired and imperial past, then, means that our new contemporary is best viewed as but a moment in a much longer unfolding, a longer *durée* over which the nineteenth century looms like the angel in Walter Benjamin's famous essay, in whose eyes history becomes not a series of discrete events but "one single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet."⁶ Resilience is part of this story, too. But our geophysical and demographic links to the Victorian moment mean that human and nonhuman scenes of subjection must be imagined together at this longer, even geological scale.

"The Anthropocene has reversed the temporal order of modernity," writes the novelist Amitav Ghosh. That is because "those at the margins are now the first to experience the future that awaits us all."⁷ One need not so readily adopt the bleak confidence of Ghosh's assessment to see that our anthropogenic present has scrambled the narrative templates and historical logics previously available for organizing experience. Rather than reversing modernity's order, our only lately dawning awareness of climate change might be said to have thrust the very premise of modernization—like its corollaries, dear to Marx no less than to his liberal enemies, progress and freedom—into crisis. This crisis pushes us to "the limits of historical understanding," in Ghosh's words, and exposes extant conceptual models

as inadequate for construing our current conjuncture, never mind for thinking beyond it.⁸ In such a situation, the task of criticism cannot be simply to switch our attention to environmental themes or ecological motifs and carry on otherwise as usual. The challenge is not about content but about form, not about accumulating more information but about reframing the methods by which we understand it. Ghosh himself describes his own previous resistance to incorporating into the plot-structure of his fiction the “unbearably intimate connections over vast gaps in time and space” that climate change generates. But “we are confronted suddenly,” he notes, “with a new task: that of finding other ways in which to imagine the unthinkable beings and events of this era.”⁹ Under the pressure of our new climatological present, the very structure of thought must change.¹⁰

The eleven new essays commissioned for this collective project aim to show how one Anthropocene first emerged into visibility in the nineteenth century. Together these interventions aim to demonstrate the diligence and acuity with which certain Victorian writers experimented with new formal techniques, and generated new models for thinking, in order to comprehend the two massively networked and often violent global systems that organized their experience, and that, we suggest, continue to organize ours: the British Empire and the Industrial Revolution’s carbon economy. The weblike networks of George Eliot’s realism or Darwin’s tangled banks are just two ways in which Victorian thinkers imagined mutual imbrication at planetary scale: Political economy, evolutionary biology, thermodynamics, early geology, and imperial administration were others. In these domains and more, the humanities continue to come to grips with the question of how the increasingly palpable fact of anthropogenic climate change will impact its own methods.¹¹ Nearly a decade after Dipesh Chakrabarty’s groundbreaking essay listed four theses for a new Anthropocene method, Ian Baucom and Matthew Omelsky still find cause to ask: “What does it mean to generate knowledge in the age of climate change?”¹² *Ecological Form* engages the persistent challenge of climate change method by (1) contributing a historical account of the period most consequential in framing the horizons of contemporary earth systems and our relations to them, the nineteenth century,¹³ and (2) by widening that problem of ecological thought to imperial, and therefore political, scale. Together, the authors gathered here demonstrate the need to rethink the procedures of cultural analysis in light of the fact that the Age of Coal, the Age of Empire, and the Age of Man are one and the same.

Victorian Studies is well positioned to speak on the topic of our climatological disaster. As a field, it has generated a set of path-breaking works

that have helped us see the nonhuman environment as central to the production of culture in modernity. Jesse Oak Taylor’s *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (2016) and Allen MacDuffie’s *Victorian Literature, Energy, and the Ecological Imagination* (2014) developed canonical statements by Gillian Beer and others to resensitize critics to the Victorians’ incipient ecological thinking. Devin Griffiths’s *The Age of Analogy: Science and Literature Between the Darwins* (2017) has shown how knowledge generated in botany and evolutionary science came to shape historicist and literary method. Other monographs, by Justine Pizzo, Tobias Menely, and several others gathered in this volume, are now in process, and a volume entitled *Anthropocene Reading: Literary History in Geologic Times* (2017), edited by Taylor and Menely, has recently drawn on its editors’ expertise in nineteenth-century archives to situate the Anthropocene “as a geohistorical event that may unsettle our inherited practices of reading.”¹⁴ In addition to this robust and growing conversation about ecology and the field’s longstanding engagement with questions of race, violence, and empire, Victorian Studies has also been at the forefront of a renewed attention to literary form and its relationship to social and political structures. From signal early works such as Franco Moretti’s *An Atlas of the European Novel, 1800–1900* (1998), to Caroline Levine’s more recent *Forms: Whole, Rhythm, Hierarchy, Network* (2014), the nineteenth century has been the testing ground for new and experimental accounts of the cultural work accomplished by narrative and poetic structure.

This book aims to bridge and expand these too-often discrete conversations by setting into motion what we call *ecological formalism*: an approach that reconsiders Victorian literary structures in light of emergent and ongoing environmental catastrophe; coordinates these “natural” questions with social ones; and underscores the category of form—as built structure, internal organizing logic, and generic code—as a means for producing environmental and therefore political knowledge. *Ecological Form* argues that the resources of ecological thinking can enable Victorian Studies to bridge the false divide between environmental history and the criticism of empire. This divergence between “natural” and social concerns was symptomatically expressed in the near-simultaneous publication of two books aspiring to define their subfield: historian Alfred Crosby’s *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (1986) and Patrick Brantlinger’s *Rule of Darkness: British Literature and Imperialism, 1830–1914* (1988). Where the first posited a biological account of empire, the other focused on culture, and neither touched the other’s domain. With

important exceptions, this schism between ecological and postcolonial approaches continues to play out as a split tradition, one concerned with nonhuman or “natural” actors, stories, and causal accounts and the other with human—that is, sociopolitical—ones.¹⁵ Yet if climate change teaches us anything, it is that these stories must be told together. The essays in this volume bear out what is already known to the precarious human beings inhabiting modernity’s sacrifice zones: Jason Moore’s sense that sociopolitical dynamics and “natural” ones mutually inform one another, and what Jennifer Wenzel, reading Frantz Fanon, calls “the indivisibility of the social and the ecological.”¹⁶ *Ecological Form* coordinates a historically attuned focus on ecology with the sensitivity to human vulnerability long associated with the critique of imperialism. This enables us to show collaboratively how nineteenth-century culture developed powerful aesthetic and political tools for engaging with intractable problems that remain our own: problems of interconnection and asymmetry, distance and intimacy, system and disaster. This is why we now find ourselves thinking about the trains in *Tess of the D’Urbervilles*.

There are trains in *Tess*, after all—lots of them. Reading Victorian literature from within our great derangement presses us to notice the fossil fuel economy enciphered in those pages—and to look on as the everyday settings of realist novels like *Tess* transform under our new sensitivities into elaborate maps of the combustion, storage, and conversion of carbon-based fuel. This carbon infrastructure is a matter of simple referential content, yes: overt references, in *Tess*, to train rides and steam-powered harvesting machines. But the energy regime of coal also, and more importantly, conditions how the very form of this novel—and, we suggest, the Novel more broadly—can be organized. During the heady days when Angel is courting Tess in the Vale of Frome, the lovers drive one wet evening to deliver milk-cans to the nearest railway station. Tess witnesses the train being loaded and, “susceptible . . . [to] the few minutes of contact with the whirl of material progress,” begins to wonder about the complex and impersonal connection that links her to a broader system of consumption and exchange:

“Londoners will drink it at their breakfasts to-morrow, won’t they?” she asked. “Strange people that we have never seen.”

“Yes—I suppose they will. Though not as we send it. When its strength has been lowered, so that it may not get up into their heads.”

“Noble men and noble women, ambassadors and centurions, ladies and tradeswomen, and babies who have never seen a cow.”

“Well, yes; perhaps; particularly centurions.”

“Who don’t know anything of us, and where it comes from; or think how we two drove miles across the moor to-night in the rain that it might reach ‘em in time?”¹⁷

More than simply representing the incursion of modernity into the allegedly feudal space of these hinterlands, Hardy’s train station shows the novel imagining its differential social geographies in systemic terms. Tess’s time in the Vale of Frome is defined by the fecundity of nature, the private interiority of heterosexual attraction, and geographic isolation. But here, if just briefly, those scenes of pastoral bliss and “natural” unity are revealed to be connected to a wider national economy—even (with “centurions”) an imperial one. In such details Hardy’s novel discloses obliquely the mutually sustaining relationship between, on the one hand, a modernizing, urbanizing metropolitan society in which babies have never seen cows, and, on the other, the productivity and effulgence Hardy is at pains to link to a category called nature. It is what Ghosh called an unbearable intimacy. And as in all such intimacies, distinction begins to break down: If we pause a moment at this obscure provincial railway station, we begin to wonder how natural that pastoral landscape really is. Hardy describes the station’s lamp as a “poor enough terrestrial star.” This modern star is “in one sense of more importance to Talbothays Dairy and mankind than the celestial ones to which it stood in such humiliating contrast.”¹⁸ The dairy in the Vale of Frome—governed by the rhythms of the railway, lit by dingy stars, its very existence dependent on a metropolitan market for milk—begins to appear as inextricably linked to, and therefore a product of, the very carbon modernity the novel conscripts it symbolically to contrast.

The dialectical codependence of nature and culture modeled here is what Jason Moore has described as the operative dynamic of all value creation under capitalism. Anna Tsing introduces us to the inevitable collaborations and contaminations between these seemingly stable categories, while Derrida in 1966 generated an early and powerful form of his method by showing how the categories of nature and culture collapse, in Claude Lévi-Strauss, to indistinction.¹⁹ A century earlier Darwin himself butted up against the shocking realization that humanity was also part of nature, and imported a Biblical idiom uneasily to patch over the fact that humankind itself might one day end up as just another loose branch on the tree of life. More telling for us, the collapsed division between nature and culture playing out in Hardy’s countryside railroad station is also the structuring condition of the novel as such. It is, at least, if we are to believe Georg Lukács, who in *The Theory of the Novel* (1920) ascribed the advent of novel

form itself to modernity's effort to come to terms with its relation to a lapsed and absent nature.²⁰ Yet more narrowly, the dynamic Hardy plays out at the level of symbol in the railway lamp is also the animating tension of Hardy's preferred figurative register *within* the novel form, pastoral. As Raymond Williams notes, this mode only comes into existence when an urbanizing modernity ("culture") began to require a poetic other ("nature") and, to fill that need, generated for its own delectation and self-affirmation images of the country as "an enamelled world," where labor is erased and social dynamism stilled into something like landscape.²¹ Following orthodox materialist practice to focus on labor relations rather than the energy forms coproducing them, Williams pins this shift in the figuration of the country and the city to "the Industrial Revolution": a periodization that discloses how fully our entire range of aesthetic templates depends upon—is unthinkable without—a nascent and then maturing fossil economy.²²

Growing up in the Vale of Blackmoor, apparently removed from that riotous modernity, Tess Durbeyfield seems to embody the local knowledge that the Victorian novel has taught us to expect from precapitalist life.²³ To her, Hardy's narrator observes, "[e]very contour of the surrounding hills was as personal . . . as that of her relatives' faces; but for what lay beyond her judgment was dependent on the teaching of the village school."²⁴ This appearance of geographic stasis primes the reader's expectation that Tess will, following the logic of *bildung*, soon transcend the limits to her individual growth. But the historical sweep of the novel instead makes clear that Tess's improvement is really a tale of decline, even tragedy, cast at evolutionary scale. Tess bears the corrupted name of a formerly powerful aristocratic family, whose bones lie interred and forgotten around the Wessex countryside, and she and her dispossessed family will ultimately spend a night encamped in one such graveyard, "their carvings . . . defaced and broken; their brasses torn from the matrices." Where the "spoliation" of her ancestral home reminds Tess "that her people were socially extinct," that last Darwinian term reminds *us* that it is not simply Tess's name but her very biotic existence, her "blood," that's been infected and determined by its evolutionary predecessors.²⁵ Her body is a holdover from a deep past over which her present self, only feebly able to act in the present, has no control at all. What form, this book asks, could map such unbearably intimate systems of entanglement? What cognitive tools might draw connections that reach not just between and among multiple bodies and landscapes—Wessex, the Arctic, Brazil—but across a timescale that links feudal crypts and Roman ruins with the biophysical histories, them-

selves accrued over eons, of the animals and plants thrown together in this fecund but doomed rural countryside?

The Victorians invented ecology: The term first entered English usage in *The Academy*, a British scientific journal, in 1875, and while the word had been coined in German in 1866, by Ernest Haeckel, Haeckel's "presentation of the term . . . embodies concepts that come straight from [Darwin's] *Origin of Species*."²⁶ Over the course of England's most modern century, the conceptual dilemmas of human beings' intertwinement with a world newly understood as "evolving, relational, and holistic" were felt most intensely as problems of intellectual scale.²⁷ How could the individual instance and the massive system be imagined at the same time? And how could any single actor within such a network envision resisting, or even altering that network? For many of the century's most sophisticated observers, these issues of scale were also problems of aesthetic form. By what figural means, these thinkers asked, could one hope to represent in a coherent literary or artistic work an entire ecosystem, where no single phenomenon can be abstracted from that system of mutual codependence? The still-startling caesura in the first third of George Eliot's *Middlemarch* (1872)—"but why always Dorothea?"—yanks us out of the focalizing, individualizing logic of novel form only to reassert a more capacious, multi-nodal version of that form, imagined through the techniques of sympathy.²⁸ But that is only a particularly gripping instance of the many means by which Victorian thinkers imagined systems and form together. As Eliot's example indicates, these aesthetic concerns in turn extend to the domain of conceptual or philosophical method. And if the disastrous entanglement between human and world in the era of coal-powered globalization generated dilemmas for literary and aesthetic presentation, those dilemmas do not go away when we, as later critics or readers, write and think about those (historical) problems. To the contrary, they become more acute, registering in, for example, our choice of intellectual objects; our delimitation of acceptable periods for analysis; the management of our thinking and writing performs between instance and category, the particular and the general, the node and the system. *Ecological Form* addresses the vexed dilemmas of what Baucom and Omelsky call "knowledge in the age of climate change" by separating the problem into four domains—method, form, scale, and futures—which correspond to the book's sections.

The first section, on "Method," stages its arguments at the level of conceptual procedure to offer models for rethinking nineteenth-century studies through ecological form. These essays directly question how our objects

of inquiry, preoccupations, and geographical horizons change in light of the new perspectives afforded by ecocritical theory, formal analysis, and critical studies of the Anthropocene. To ask what it means to acknowledge the fundamentally ecological nature of colonialism, Sukanya Banerjee focuses on the industrial cultivation of indigo in nineteenth-century Bengal and Bihar. This concern leads her to drama—specifically, to Dinabandhu Mitra's play, *Neel Darpan* (1860)—and to show how the “groundedness” of dramatic text and performance, rather than its transnational mobility, might enable us to conceive of the complex intersections between colonizer, colonized, and non-human agents. Another seemingly “grounded” form, the elegy, sits at the center of Jesse Oak Taylor's contribution: Alfred Tennyson's *In Memoriam* (1850) offers a test-case for an Anthropocene literary history because it allows us to revisit the Victorian archive with an awareness of our species' geological agency. In an age of mass extinction, to mourn a species, Taylor argues, is to freight that species with ethical and political consequence; to read *In Memoriam* as an elegy for the Anthropocene is therefore to grasp how shared loss might provide the basis for new forms of community and politics. Turning from the Anthropocene to the fossil fuels that have produced it, Nathan K. Hensley and Philip Steer take up the question of coal's paradoxical invisibility as an energy system in the Victorian novel. Omnipresent but strangely inapprehensible, the spectacular energy surplus of coal power finds form in narrative structures that give shape to, or seek to stall, the forcible opening of bounded societies to a global economy. Turning this “hermeneutics of coal” on Elizabeth Gaskell's *Cranford* (1853) and *North and South* (1855) as well as on Joseph Conrad's spiraling *Nostromo* (1904), Hensley and Steer also disclose the decisive but disavowed role coal plays in our most influential critical accounts of political reading, from Catherine Gallagher to Fredric Jameson.

The second section uses the category of “Form” to coordinate the dilemmas of environmental and political ecology described previously. These essays explore the capacity of Victorian forms not just to represent ecological and economic systems as content or theme, but to model them in their own organizational and imaginative structures. Elizabeth Carolyn Miller's chapter highlights the kinds of temporal awareness and economic thinking that arise when we think in terms of energy. For Miller, George Eliot's *The Mill on the Floss* (1860) is not only a female *bildungsroman* or modernity story but a sophisticated account of the transition from water-power to steam-power; Eliot's sensitivity to this interstitial moment between energy regimes becomes a methodological opportunity because it makes visible our need for a critical practice willing to toggle between past

and present in order to grasp the scale of challenges facing us now. The concept of sustainability also originates as a problem of Victorian form, finds Deanna K. Kreisel, who points out that John Ruskin's writings on organicism productively fail to differentiate the living from the non-living. By defining life as ordered form, Ruskin's writings on seemingly inert natural objects—rust, crystals, and leaves—point the way to contemporary sustainability theory by immersing the human in the natural world and showing a dramatic dynamism to characterize both. Adam Grener rethinks the relationship between empire and ecology in Victorian realism, focusing on the crucial role of weather and atmospheric imagery in Victorian efforts to conceptualize systemic interconnection. If Charles Dickens's *Dombey and Son* (1846–48) fails at the level of content to correlate the Empire with its nationally scaled visions of reform, this novel's globalized ecological tropes nevertheless demonstrate how novel form cannot but situate the local and particular within the totalizing systems that contain them.

The book's third section, “Scale,” shows how Victorian literary and theoretical writing engaged productively with the scalar distortions that followed from their efforts to comprehend vastly complex systems like ecologies and empires. These essays make the case for Victorian authors' self-conscious movement between registers of magnitude and their exploitation of what Bruno Latour calls the “zoom effect.”²⁹ For Benjamin Morgan, utopian form can be defined precisely because of its scalar qualities: Committed to mediating totality, utopia is attuned to interactions between human and nonhuman systems at multiple levels. This capacity comes into focus when William Morris's *News from Nowhere* (1890) is read in light of Samuel Butler's *Erewhon* (1872), a satire of settler colonialism that recognizes the multiple levels—individual, societal, imperial—at which society and the economy is infused with nature and biology. Lynn Voskuil tracks the global ambitions of Victorian botanical science to show how scale emerged as a fundamental conceptual challenge for thinkers aiming to conceive life in systemic terms. For Voskuil, Joseph Dalton Hooker's struggle to account for the global distribution of plant species, and for the perspectival distortions of the landscape and biosphere he experienced in the Himalayas—recounted in his *Flora Indica* (1855) and *Himalayan Journals* (1854)—anticipate and foreground the scalar distortions inherent in more recent critical turns to “distant,” quantitative methodologies. Scale effects also trouble the Victorian novel, Aaron Rosenberg points out: He shows how Thomas Hardy's invocations of romance and melodrama became formal strategies for evoking magnitudes of experience beyond the human scale of realism, geological time and astronomical space. In *Two on*

a Tower (1882) and *A Pair of Blue Eyes* (1873), the scalar patterns native to realist form thwart the marriage plot, even as the sensational modes rising to fill their place prove capable of bringing deep time and space into alignment with the (human) present.

The book's final section, on "Futures," bears out our shared conviction that the century of coal remains our own. These essays show how this sense of continuity or even intimacy with our nineteenth-century past might productively distend the boundaries of period and nation still structuring humanistic inquiry. Resilience, persistence, and oppositional ongoingness: These and related figures for capacity structure the essays in this section, and demonstrate that the aim of this collection is not merely to write the disaster, but to think with it and through it. Not to rest in the often self-aggrandizing modes of elegy, witness, or sublime renunciation but to begin the work of imagining forms of life and work that might move us, together, toward livable futures. Monique Allewaert relocates Marx's famous commodity fetish—the degree zero for critical accounts of western modernity—and relocates this decisive concept in the Atlantic milieu whose African-American fetish practices gave it shape. In tracking the animist legacies of this critical concept, Allewaert shows how continents, cultures, and ecologies have intersected in the past to imagine forms of value not just within but outside exchange. Thus do the writings of Marx's contemporary Martin Delany, particularly *Blake; or the Huts of America* (1859–62), construe from those animist legacies an acapitalist mode of valuation that offers hope for the present moment: "It's time, again," Allewaert writes, "to be cheered by the strange movements on the edges of empire and the materialisms that flash forth from them." Hope also radiates from Teresa Shewry's account of satire's long arc across the history of settler colonialism, from Butler's *Erewhon* to the contemporary poetry of David Eggleton. If satire now seems to short-circuit in the face of ecological crisis, Shewry argues, its tone seemingly mismatched to the scale of its object, that may be because satire pinpoints our lingering affective attachments to fossil-fueled lifeways. In the context of such residual attachments, satire's capacity for scathing critique holds out the possibility of alternative futures, beyond those prescribed for us by habit—if we choose to take them. Karen Pinkus concludes the volume by putting our shared values of experimentalism, improvisation, and creative resilience into explicit practice. Her contribution takes the shape of a dialogue between Jules Verne's 1877 fantasy novel about coal extraction, *Les indes noires* (*The Black Indies*), and its twenty-first-century reader, "Karen Pinkus." This oscillation between nineteenth- and twenty-first-century subject and object generates a pro-

ductive groundlessness, an interface between a fantasy tale from the coal-age and our own critical moment that for Pinkus yields some qualified push toward possibility. "We must take care of each other," she concludes. "[B]ut can we imagine doing so outside of . . . escapist fantasy?"

To finish, then, we rework that question by offering two canonical Victorian scenes that have come to haunt us as this project has taken shape. The first takes us back to *Tess*: It is that character's harrowing late-night baptism of her dying baby, the living reminder of her rape by Alec D'Urberville, whom Tess names Sorrow. Tess's hasty and theologically empty baptismal rite is meant to secure for her dead baby a future redemption that readers know it will not receive. We find in Tess's insistence on Sorrow's churchyard burial a startling refusal to abandon the project of care, despite the seeming futility of that commitment. Sorrow's life was so short, we are told, that he thought "the week's weather climate": All he knew was the weather of his own short time here.³⁰ In the midst of our own brief time on earth in the late Anthropocene, Tess flashes forth not just a disposition of persistence and fidelity amid catastrophe. In the face of the suffocating, attenuating systems that would render action null, Tess also refuses to abandon her conviction that individual works of care might, and do, matter.

The second scene is Robert Browning's "Love among the Ruins" (1855), which views the site where an imperial city once stood, but which has since been erased by nonhuman life:

Now—the country does not even boast a tree,
As you see,
To distinguish slopes of verdure, certain rills
From the hills
Intersect and give a name to (else they run
Into one)
Where the domed and daring palace shot its spires
Up like fires³¹

What catches our attention, and distinguishes this from so many other nineteenth-century visions of vanished empire and the forms that outlast them—from Shelley's "Ozymandias" (1818) to Dante Gabriel Rossetti's "The Burden of Nineveh" (1856)—is the haunting sense of a natural world gladly shrugging off its human traces. "O heart!," Browning writes. "[O]h blood that freezes, blood that burns! / Earth's returns / For whole centuries of folly, noise, and sin!"³² Faced with this scene of desolation, the poem answers with a cliché, "Love is best."³³ Of all the tasks facing us now, one

of them, we suggest, might be to strip the varnish from that maxim and from this poem, as from *Tess*, and to recover a more pressing and even radical form of love, expanded now beyond species division and even beyond the category of life. Doing so might help us imagine how, under an affect of care and solidarity, we might yet imagine possibility and co-evolution from amid the disaster of our present.

Notes

1. Freud notes, as though talking about the earth under capitalism, that "[t]he act of obtaining erotic mastery over an object coincides with that object's destruction." In healthy libidos, this originary sadism toward the object gets transformed for purposes of reproduction. Where this conversion toward generation fails, "we should produce an example of a death instinct," Freud says; but "this way of looking at things is very far from being easy to grasp and creates a positively mystical impression." Sigmund Freud, *Beyond the Pleasure Principle*, trans. and ed. James Strachey (New York: Norton, 1961), 65.
2. Jeremy Davies, *The Birth of the Anthropocene* (Berkeley: University of California Press, 2016), 5.
3. *Ibid.*, 39.
4. Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge: Harvard University Press, 2011), 2.
5. Charles Darwin, *The Structure and Distribution of Coral Reefs, Being the First Part of the Geology of the Voyage of the Beagle, Under the Command of Capt. Fitzroy, R.N. during the years 1832 to 1836* (London: Smith, Elder, and Co., 1842).
6. Walter Benjamin, "Theses on the Philosophy of History," in *Illuminations*, trans. Harry Zohn (New York: Schocken Books, 1969), 249.
7. Amitav Ghosh, *The Great Derangement: Climate Change and the Unthinkable* (Chicago: University of Chicago Press, 2016), 62–63.
8. Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry* 35, no. 2 (2009): 221.
9. Ghosh, *Great Derangement*, 63, 33.
10. As Karen Pinkus writes, "We might go to an extreme and suggest that whether or not we explicitly take up climate change in our writing (critical, creative, institutional-bureaucratic, or otherwise), climate change takes us up. Writing in the time of climate change—even critical writing engaged with texts from before the widespread extraction of fossil fuels—is necessarily untimely, out of joint with familiar modes of thinking and being, no matter how heterogeneous these may be." "Climate Change Criticism," *Diacritics* 41, no. 3 (2013): 3.

11. The challenges that climate change poses to humanistic method are summarized in Ian Baucom and Matthew Omelsky, eds., "Climate Change and the Production of Knowledge," Special issue of *SAQ: South Atlantic Quarterly* 116, no. 1 (2016); Ian Baucom, "History 4°: Postcolonial Method and Anthropocene Time," *Cambridge Journal of Postcolonial Literary Inquiry* 1, no. 1 (2014): 123–42; Chakrabarty, "Climate of History." Another important line of thinking, often adding feminist concerns to the sometimes masculine debates noted previously, follows Donna J. Haraway to show how the nature-culture division crucial to certain strains of humanities thinking breaks down under our climate crisis. See, for example, Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016); Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015); and Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times* (Minneapolis: University of Minnesota Press, 2016).

12. Baucom and Omelsky, "Knowledge," 2.

13. The nineteenth century "saw the emergence of meteorology and climatology as two distinct fields," with the foundations of a "holistic concept of climate" laid by Alexander von Humboldt. Victorian scientists deduced the "fundamental energy-transport function of the climate system," while Svante Arrhenius first proposed in 1896 that carbon dioxide could produce atmospheric warming at global scale due to a greenhouse effect. Matthias Heymann, "The Evolution of Climate Ideas and Knowledge," *Wiley Interdisciplinary Reviews: Climate Change* 1 (2010): 587–89; Paul N. Edwards, "History of Climate Modeling," *Wiley Interdisciplinary Reviews: Climate Change* 2 (2011): 128.

14. Tobias Menely and Jesse Oak Taylor, Introduction to *Anthropocene Reading: Literary History in Geologic Times* (University Park: Penn State University Press, 2017), 6. We also note here the formation in 2016 of the "Vcologies" group, which formalized a gathering interest in Victorian ecocriticism and, in the manner of a Saussurean sign, did much to make a new object—Victorian ecology—conceptualizable.

15. For exceptions see Siobhan Carroll, *An Empire of Air and Water: Uncolonizable Space in the British Imagination, 1750–1850* (Philadelphia: University of Pennsylvania Press, 2015); John McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914* (New York: Cambridge University Press, 2010); and Mike Davis's astonishing *Late Victorian Holocausts: El Niño Famines and the Making of the Third World* (London: Verso, 2002). That the latter book, in particular, has yet to be interpolated into Victorian Studies' self-understanding as a field is symptomatic of the divide between ecological and human histories of catastrophe we seek here to address.

16. Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015); Jennifer Wenzel, "Turning Over a New Leaf: Fanonian Humanism and Environmental Justice," in *The Routledge Companion to the Environmental Humanities*, ed. Jon Christensen, Ursula K. Heise, and Michelle Niemann (Abingdon: Routledge, 2017), 166.
17. Thomas Hardy, *Tess of the D'Urbervilles*, ed. Tim Dolin (London: Penguin, 1998), 187.
18. *Ibid.*, 186.
19. Jason W. Moore, *Capitalism in the Web of Life*; Anna Lowenhaupt Tsing, *The Mushroom at the End of the World*. Jacques Derrida, "Structure, Sign, and Play in the Discourse of the Human Sciences," in *The Structuralist Controversy: The Languages of Criticism and the Sciences of Man*, ed. Richard Macksey and Eugenio Donato (Baltimore: Johns Hopkins Press, 2007).
20. Georg Lukács, *The Theory of the Novel: A Historico-Philosophical Essay on the Form of Great Epic Literature*, trans. Anna Bostock [1920] (Cambridge: MIT Press, 1974).
21. Raymond Williams, *The Country and the City* (Oxford: Oxford University Press, 1973), 18.
22. *Ibid.*, 2. That nature and culture "coproduce" one another—indeed, that "we might instead look at the history of modernity as co-produced, *all the way through*"—is the insight of Moore, *Capitalism in the Web of Life*, 7, original emphasis.
23. For John Barrell, "Hardy attempts to communicate a notion of . . . [a] primitive [sense of] geography, as it inheres in its purest form in the consciousness that he attributes . . . to Tess before her marriage." "Geographies of Hardy's Wessex," in *The Regional Novel in Britain and Ireland, 1800–1990*, ed. K. D. M. Snell (Cambridge: Cambridge University Press, 1998), 112.
24. Hardy, *Tess of the D'Urbervilles*, 36, 37.
25. *Ibid.*, 363.
26. "ecology, n." OED Online, Oxford University Press, January 2018, <http://www.oed.com/view/Entry/59380?redirectedFrom=ecology> (accessed March 16, 2018); Robert C. Stauffer, "Haeckel, Darwin, and Ecology," *The Quarterly Review of Biology* 32, no. 2 (June 1957): 138–44, 143. This account draws on Elizabeth Carolyn Miller, "Ecology" (Unpublished manuscript, March 3, 2018).
27. Miller, "Ecology," 2.
28. George Eliot, *Middlemarch*, ed. David Carroll (Oxford: Oxford World's Classics, 2008), 261.
29. Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005), 186.
30. Hardy, *Tess of the D'Urbervilles*, 96.

31. Robert Browning, "Love among the Ruins," in *The Norton Anthology of English Literature*, ed. M. H. Abrams and Stephen Greenblatt, vol. E, *The Victorian Age*, ed. Carol T. Christ and Catherine Robson, 8th ed., lines 13–20 (New York: Norton, 2006).
32. *Ibid.*, lines 79–81.
33. *Ibid.*, line 84.

44. Ashley Dawson, *Extinction: A Radical History* (New York: OR Books, 2016).
45. Henry M. Cowels traces the scientific study of anthropogenic extinction—and political advocacy to prevent it—to the work of Alfred Newton in the late nineteenth century. While it comes two decades after *In Memoriam*, Newton's work suggests that not all Victorians were as sanguine about extinction as is often supposed. Henry M. Cowels, "A Victorian Extinction: Alfred Newton and the Evolution of Animal Protection," *British Journal of the History of Science* 46, no. 4 (Dec. 2013): 695–714.
46. T. H. Huxley, "On the Formation of a Piece of Coal," *Discourses: Biological and Geological, Collected Essays*, Vol. 8 (New York: D. Appleton, 1897), 137–61. See discussion in Allen MacDuffie, *Victorian Literature, Energy, and the Ecological Imagination* (Cambridge: Cambridge University Press, 2015), 28–34, and Jesse Oak Taylor, *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (Charlottesville: University of Virginia Press, 2016), 127–29.
47. Arabella Buckley, *The Fairy-Land of Science* (Philadelphia: J. B. Lippen-cott, 1888), 192.
48. Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (New York: Verso, 2015).
49. Dipesh Chakrabarty, "Postcolonial Studies and the Challenge of Climate Change," *New Literary History* 43, no. 1 (Winter 2012): 1–18, 14.
50. *Ibid.*, 14.
51. I explore this idea most directly in "Globalize," Jeffery Jerome Cohen and Lowell Duckert, eds., *Veer Ecology: A Companion for Environmental Thinking* (Minneapolis: University of Minnesota Press, 2017): 30–43. See also, *The Sky of Our Manufacture*.
52. Stewart Brand, *Whole Earth Discipline: An Ecopragmatist Manifesto* (New York: Viking, 2009).
53. Will Steffen et al., "Stratigraphic and Earth System approaches to defining the Anthropocene," *Earth's Future* 4 (2016): 325–45.
54. Jeremy Davies, *The Birth of the Anthropocene* (Oakland: University of California Press, 2016). In a fittingly Tennysonian move, Davies's last chapter offers "an obituary for the Holocene" (145–92).
55. Fuss, *Dying Modern*, 7.
56. Jedediah Purdy, *After Nature: A Politics for the Anthropocene* (Cambridge: Harvard University Press, 2015), 5.

CHAPTER 3

Signatures of the Carboniferous

The Literary Forms of Coal

Nathan K. Hensley and Philip Steer

All rightful honor, then, to these priceless Diamonds—whether they be black spirits or furnace-white, flame-red spirits, or ashy-grey—whether cannel coal and caking coal—cherry coal and stone coal—whether any of the forty kinds of Newcastle coal, or any of the seventy species of the great family, from the highest class of the bituminous, down to the one degree above old coke.

—"THE BLACK DIAMONDS OF ENGLAND," *Household Words*, June 8, 1850

Steam has been a spur to everything.

—UNNAMED SHIP OWNER, 1844, quoted in *The Oxford History of the British Empire*, Vol. III, *The Nineteenth Century*

The Defined Excluded

In the 774 pages that make up Volume III of *The Oxford History of the British Empire, The Nineteenth Century*, coal is mentioned precisely three times.¹ These few sentences cast coal as barely a bit player in the grand opera of macrohistorical forces and microhistorical actors—generals, natives, economic trends, and trade arrangements—detailed in Oxford's authoritative account of the Empire. The anonymous ship owner cited above, who claimed that when it came to Empire, "Steam has been a spur to everything," is presented in the volume only as "overestim[at]ing" steam's effects.² Yet the mysterious substance that might conjure the mechanical power of steam was what Richard H. Horne, in an astonished *Household Words* essay of 1850, called the "priceless diamond" of Victorian modernity.³ The Victorians knew very well that such jewels were anything but modern: Formed during the Carboniferous period, a warm and humid epoch 359 to 299 million years before human beings walked the Earth, the Victorians' black diamonds were the remains of ferns, leaves, and other organic materials subjected to pressure over vast expanses of prehuman

time.⁴ As water levels rose and fell, these biotic remains were buried before they could release their energy in decomposition, thus storing away "the power of millions of years of solar income . . . in a solar savings account of unimaginable size."⁵ As the century progressed, therefore, Victorian England was increasingly "rooted in a past so distant it still could not be imagined."⁶ Spurs to almost everything, these crystals of fossilized life had been endowed by geological luck with the capacity to do nothing less than (in Horne's words) "advance those sciences and industrial arts which are equally the consequence and re-acting cause of the progress of humanity."⁷

If coal has yet to find its place in official histories of British imperialism, this magical black stone nevertheless provided the motive power for the Empire's worldmaking project. Coal fueled the industry that made England a global power; underlay the most significant advances in technological and material progress in this most progressive age; and quite literally drove the expansionist policies of England's rapid aggrandizement and increasingly acquisitive militarization after 1880.⁸ If, as Benjamin Morgan, among others, has recently observed, the Victorian period might usefully be re-described as the Age of Coal, then the world-spanning configuration of the British Empire confirms that this energy form reigned over not only time but space.⁹ Coal was the very engine of British global power in the nineteenth century, the indispensable fuel for the project of expropriation, reinscription, and extraction that Horne called "the progress of humanity." But how did the effects of this black diamond—enormous, ongoing, yet strangely resistant to conceptualization—become legible in cultural form?

In what has become our most canonical account of historical interpretation, Fredric Jameson updates a tradition of Marxist thinking about mediation to advocate a reading practice able to discover how cultural productions rearticulate the "mode of production" that generated them: Literary and aesthetic works come into focus as "formal conjuncture[s] through which the 'conjuncture' of coexisting modes of production at a given historical moment can be detected and allegorically articulated."¹⁰ As is well known, this method of reading-as-decryption constitutes Jameson's key apparatus for imagining the relations of determination by which a literary "conjuncture" is construed to spring from and recast the material one contemporaneous with it. This political grounding or "ultimately determining instance" (for example, 32, 36) is the mode of production. Sophisticated as it is, Jameson's reworking of Marxian determination theory nonetheless follows its source code, in *Capital*, to see the mode of production only in light of labor relations: Thus do traces of feudalism, capitalism, and social-

ism, say, commingle unevenly in a given work, generating the impress of the present no less than a negative image of what is to come.

Given this focus on social relations, it is perhaps unsurprising that, as in *Capital* itself, neither coal nor any other energy form earns significant mention in *The Political Unconscious*. But as this essay will show, attention to energy regimes helps us appreciate that the mode of production that even our most persuasive theories of mediation view as the elemental "level" in any system of social mediation—its ultimately determining instance, or what Marx calls the "absolutely objective conditions" of an "economy"—is itself subtended by another "level," an energy regime with respect to which the political itself is, as it were, superstructural.¹¹ Raymond Williams and Louis Althusser, among others, have helped trouble this language of levels and planes, bases and superstructures, and have shown how the relations among seemingly separate domains of historical experience are far from simple, stratified, or easily hierarchizable: They are, in Althusser's term, "overdetermined."¹² Still, it remains the case that to raise the problem of energy's relation to "production" is to reanimate the oldest problems in materialist criticism but locate them, as it were, deeper; and we might follow Tobias Menely, Jason Moore, and others in seeking to understand how the canonical problem of determination becomes unspooled and reorganized with attention to systems of energy and the yet more elaborate models of historical causality they challenge us to imagine.¹³ These dilemmas become further complicated when we ask how a system of energy storage, transport, and conversion that is structuring and omnipresent, even if unevenly distributed, and therefore all but impossible to conceptualize as such from within, becomes visible in cultural productions seemingly unable or unwilling to engage this energy system, as a system, directly. After all, as Jameson argues in *Political Unconscious* with respect to the relationship between the text and the "social ground" from which it emerges, "the social contradiction addressed and 'resolved' by the formal prestidigitation of narrative must . . . remain an absent cause, which cannot be directly or immediately conceptualized by the text" (75, 82). Jameson's later analysis of life under global capitalism explains how the "structural coordinates" of daily experience are "no longer accessible to immediate lived experience and are often not even conceptualizable for most people."¹⁴ If this is true, then by what indirect means did the infrastructure of coal-life emerge into form? And if coal was and remains the disavowed force behind Victorian modernity, its spur to everything, by what methods might we discover its signature?

This chapter revises existing accounts of Victorian mediation by locating what is arguably the signal cultural form of the nineteenth century—the novel—within the global energy system that increasingly made it possible. While we engage political and economic theory, we here leave aside epic poetry, oil painting, journalism, photography, theater, and dance—along with myriad other cultural forms whose shapes, logics, and formal designs would have been decisively shaped, in some way or another, by the effects of coal. (Print journalism is just one obvious place where coal becomes legible as form, since the literal shape of the journalistic article changed based on advances in steam-driven printing presses.) Our aim in this deliberately constrained experiment in reading for coal is to offer a test case in adducing how the practices and infrastructures of fossil combustion became legible as literary effect.

Writing of the oil-based economy of the twentieth and twenty-first centuries, Ross Barrett and Daniel Worden have described the “curious valence” of oil in the “cultural imagination,” whereby it is “not invisible to us as much as it is contained—in our cars’ gas tanks, in pipelines, in shale, in tar sands, in distant extraction sites.”¹⁵ Coal is likewise obliquely omnipresent in Victorian literature. Dickens’s account of the construction of the London-Birmingham railway in *Dombey and Son* (1848)—where, famously, the railway, “from the very core of all this dire disorder, trailed smoothly away, upon its mighty course of civilisation and improvement”¹⁶—is memorable in part because of its anomalous interest in the social, spatial, and economic “earthquake” produced by steam. More common are cultural forms that depict railway journeys as an ordinary part of their narrative lifeworlds; more common still are those that, while alluding to steam-powered travel or the products of steam-driven manufacture, regard these aspects of narrative infrastructure as entirely beneath the interests of story: They melt the socio-environmental processes of energy extraction, storage, combustion, and conversion, almost reflexively, into the category of the everyday.¹⁷ In this sense do steam and the coal that fired it become recognizable as what Althusser refers to as a “condition of possibility” within a historical structure, one that, precisely *because* it undergirds all facets of experience within what he calls a historical field or “problematic,” is inapprehensible from within it: In Jameson’s words quoted previously, which channel Althusser, it is a “truth” that is “no longer accessible to lived experience.”¹⁸ Approached this way, coal is what Althusser calls a “defined excluded,” something “*excluded* from the field of visibility and defined as excluded by the existence and particular structure of the prob-

lematic.”¹⁹ A society that depended entirely on coal could barely, precisely because of that dependence, become conscious of coal at all.

How did this darkness become visible? How did the unrepresentable find shape? The pages that follow propose one way of answering those questions, by attempting what we term a hermeneutics of coal. E. A. Wrigley has argued that the Victorian era saw a coal-driven transition from an “advanced organic economy” to a mineral-based “energy economy.”²⁰ In this historical shift, economic growth became decoupled from the limits of agricultural production for the first time in history. Given the unmooring of productive power under the coal regime, we argue two related points about coal form. First, coal plays a structuring role in texts that consider how bounded or localized systems of belonging—economies, nations—might be transgressed, opened up, or otherwise superseded. The spectacular energy potential of fossil carbon, in other words, was the enabling condition for an increasingly global imaginary. Second, we suggest that the scope of those carboniferous literary effects becomes fully apprehensible only when we constellate texts from across the full expanse of the era’s carbon-fueled economy, in what are usually conceived as discrete categories of genre and geography.

Chasing coal’s signature, this chapter telescopes from the canonical scenes of Victorian extraction and combustion that criticism has long filed under the heading “industrial”—the metropolises of England’s northern counties—to colonial peripheries rarely included in extant stories of British coal. We begin with a diptych of coal-haunted novels by Elizabeth Gaskell, and set the archetypal industrial romance, *North and South* (1855), against the sketchy and all-but-plotless *Cranford* (1853); turn to J. R. Seeley’s romance-inflected manifesto for an Empire-wide British polity, *The Expansion of England* (1883); and conclude with Joseph Conrad’s auto-demolishing analysis of extractive capitalism at the Pax Victoriana’s violet hour, *Nostromo* (1904).

“Friends in this big smoky place”

In *North and South*, we find coal’s signature not only on its familiar scenes of urban squalor and industrial exploitation, but in the novel’s (impossible and unsatisfied) desire to find narrative closure in the organic form of the nation. Fissured by railways, Irish migrant labor, volatile American supplies of cotton, and the fluctuations of global credit, the novel stages the nation’s new coal-powered networks as structurally unimaginable even as they are

materially unavoidable: "By the 1840s, coal was providing energy that in timber would have required forests covering twice the country's area, double that amount by the 1860s, and double again by the 1880s."²¹ Viewed from the perspective of Victorian energy regimes, the novel's structuring opposition—between agricultural South and industrial North—comes into focus as a confrontation between (1) the traditional organic economy, in a static state deriving from the need to "live within limits set by their ability to capture some fraction of a [solar] flow whose size varies very little from year to year," and (2) a new, coal-fired economy driven by "stocks of energy rather than [built] upon organic energy flows."²² Manchester, fictionalized by Gaskell as Milton-Northern, was ground zero for this transformation: Fueled by the vast coalfields in neighboring Lancashire, more than 500 chimneys choked the city by the 1840s, the smoke a byproduct of booming cotton production; the city's population had more than quadrupled in half a century to more than 300,000 by 1851; in their homes, those residents were burning an estimated two million tons of coal annually, or approximately five tons per capita.²³

In the earlier *Cranford* (1853), Gaskell had taken the rapidly altering social and geographical provincial landscapes of her carbon economy as the occasion to unravel the architecture of the novel: this book, first published in a run of essayistic entries in *Household Words*, became as a novel a series of plotless sketches, its form a vectorless equilibrium punctuated by bank failures (which ruin Matty), allusions to the imperial deathworld of India (where Peter falls ill and expires), and the *deus-ex-machina* of the "nasty cruel railroads" (which run over Mr. Brown, who prefers *Pickwick Papers* to Dr. Johnson, as he is distractedly "a-reading some new book as he was deep in").²⁴ The only references to coal in this inward-looking text direct us to the domestic hearth. Still, in its self-reflexive nods to popular fiction—which Dickens famously altered in the serial version, removing the *Pickwick* reference—and a wider world beyond its pages, Gaskell labors to connect her own fictional practice to the railway economy at its full global scale, going further to mark this steam-driven economy and the literature proper to it as tracking toward death, anomie, ruin. The book's seemingly isolationist naiveté is undercut by a globalizing irony because "such simplicity might be very well in Cranford, but would never do in the world."²⁵ By contrast to this enigmatic modernity tale, Gaskell's archetypal industrial novel, *North and South*, unfolds in an affirmative mode, figuring the new carbon-based speculative and imperial economy through Margaret Hale's domesticating encounter with Milton-Northern. Here, Gaskell maps the intersections among population, urban geography, and economics in ways

no less detailed than in *Cranford*; but *North and South*'s setting—in the metropole rather than the provinces—means that the residue of the force binding all these factors together, coal, hangs over the novel's world:

For several miles before they reached Milton, they saw a deep lead-coloured cloud hanging over the horizon in the direction in which it lay. . . . Nearer to the town, the air had a faint taste and smell of smoke; perhaps, after all more a loss of the fragrance of grass and herbage than any positive taste or smell. Here and there a great oblong many-windowed factory stood up, like a hen among her chickens, puffing out black "unparliamentary" smoke, and sufficiently accounting for the cloud which Margaret had taken to foretell rain.²⁶

Margaret's first impression shows us that Milton-Northern is, from the outset, imagined as an ecosystem of the carbon economy. In the absence of nature, the novel presents the environmental question of air quality as inseparable from the spatial reorganization of the city's residential areas and the prominence and power of industrial production. As Barbara Freese observes, workers' lives in industrial cities such as Manchester or Milton-Northern were "constructed, animated, illuminated, colored, scented, flavored, and generally saturated by coal and the fruits of its combustion."²⁷ In mid-century urban centers such as the one Gaskell documents, then, coal was both phenomenological horizon (because everything one could experience was "saturated" with it) and total institution (because there was no escape from its effects). Yet the totalizing fact of coal-life registers only slightly in Gaskell's novel; once Margaret is immersed in this milieu, coal is barely mentioned, and references to the city's smoky air fade to insignificance. As direct notation falls away, the novel's sensitivity to processes of coal-fired social reorganization reconstitutes itself in the language of energy, strength, and power that pervades its account of the city, and especially Margaret's consciousness of the Byronic factory owner, John Thornton.

In ways perfectly foreign to the queer and sexless *Cranford*, *North and South* uses Margaret's erotic attraction to Thornton to imagine the rising industrialist class as a potentially fecund marriage between brute masculine productivity and domestic manners, fetchingly female. But this union also enables what Thornton describes as the "imagination of power" by personifying, and thus domesticating, the effects of the combustion of coal (81). The characterization of the brooding, "Teutonic" mill owner enables steam technology to be masculinized and eroticized as the conqueror of a passive "inanimate nature": "rather rampant in its display," the new form of

power now able to be commanded “seemed to defy the old limits of possibility” (162). Margaret’s susceptibility to Thornton and his rampant machinery—that is, the allegorizing of the carbon economy through the love plot—effectively naturalizes the coal-fired economy, presenting it as something that merely requires a more respectful treatment of its laborers to be accommodated by the existing organic imagined community. Whereas Margaret had previously been concerned that Thornton’s home was unhealthily close to his place of business, “blackened, to be sure, by the smoke, but with paint, windows, and steps kept scrupulously clean,” now industrial harmony is found in the transformation of the factory into a domestic space, as he constructs a dining room for his employees and they more than return the favor by voluntarily working overtime (111). Yet the irony persists that the novel’s ability to imagine a unified nation is predicated upon Margaret’s use of the same coal-powered technology that is pulling it apart and reshaping it. Although it is “[r]ailroad time” that first “inexorably wrenched them away from lovely, beloved Helstone,” it is also the railway’s ability to bridge the North and the South that nevertheless allows Margaret to comprehend them within a single frame at all (57).

The novel thus labors to domesticate the very forces whose catastrophic unleashing it documents. These forces are global in nature, and over the course of the narrative, the novel proves unable to contain the far-flung threats to national stability that have been brought about by the coal-powered annihilation of distance. Andreas Malm argues for the necessity of understanding the intersection of “thermodynamic and social power” in the use of fossil-fuel energy for, “by definition,” they are “a materialisation of social relations.”²⁸ As *North and South* documents, coal allowed mill owners to transcend Britain’s borders in search of profits, whether by threatening to relocate their operations if labor costs rise further or by importing migrant labor from across the Irish Sea to undermine the conditions afforded to local laborers. Yet by the novel’s conclusion, its perspective on the global marketplace is itself transformed, as what had at first only been figured as a source of raw materials and consumer demand—the global market itself—is ultimately revealed to be so powerful and destabilizing that any national rapprochement between the masters and men ultimately appears to be only a temporary solution at best. Despite Thornton and his employees’ finding a way “to look upon each other with far more charity and sympathy,” it takes only a few pages for the fluctuations of a global market to leave Thornton, like Matty in *Cranford*, ruined: forced to “give up the business in which he had been so long engaged with so much honour and success” (410, 415). In this way has coal split apart the

very literary and social forms (the novel, the nation) Gaskell marshals to contain its energies.

In *The Industrial Reformation of English Fiction*, Catherine Gallagher finds factory literature from the industrial decades—narratives such as *Hard Times* (1854), *Michael Armstrong* (1840), *The White Slaves of England* (1853), and *North and South* itself—to be organized around what she calls “tropes of reconciliation”: more or less elaborate formal and ideological solutions whereby the public (male) world of wage labor and market capitalism is made by means of plot to harmonize with the private domestic (female) world of the family that is its natural antagonist. But if the nineteenth-century novel is defined, as Gallagher shows, by the “structural tension between impulses to associate and to disassociate public and private realms of experience,” reading for coal’s signature shows that the form is called upon to manage yet more profound structural tensions than these.²⁹ The work of the industrial novel, we argue here, is to “manage” the new energy regime that made its very existence possible. In the hands of Gaskell and other writers of industrial romance, in other words, the technology of plot becomes the means by which the horizonless potentialities of coal might provisionally or aspirationally be bound, contained, and made thinkable within a national paradigm defined, now, by the marriage plot and its implicit corollaries, heterosexual domesticity and reproductive futurity. *Cranford*’s queer plot, refusing each of these solutions in turn, ends its seemingly ateleological meander with Matty, unmarried and non-reproductive, scraping together a locally scaled business indifferent to the utilitarian calculus of profit. *North and South* builds to a more conventionally satisfying conclusion, with Margaret providing Thornton with a welcome infusion of capital that allows him to return to his role as mill owner, their financial and erotic plots ultimately sealed as one. Yet this heavily freighted marriage plot, cancelling social antagonism and ensuring Thornton’s continued ability to extract profit from the system of carbon-fired exploitation he oversees, can do nothing to address the destabilizing international economic shifts, always tending toward ruin, coal will eventually bring home.

Unparalleled Expansion

North and South deploys romance to offer its recuperative response to the social and economic forces unleashed by the steam-driven economy: the erotics of the marriage plot wrest from this chaos a fantasy of the racially pure, harmonious, and future-oriented nation. In subsequent decades, a

similar reflex toward containment underpinned the most forthright attempts to imagine the political effects of coal technology at an imperial scale. The theoretical vanguard of efforts to manage the endlessness and unfixability of this new form of capital accumulation was located within the movement to create a global British polity: as J. R. Seeley put it in *The Expansion of England* (1883), "Science has given to the political organism a new circulation, which is steam, and a new nervous system, which is electricity. . . . They make it in the first place possible actually to realise the old utopia of a Greater Britain, and at the same time they make it almost necessary to do so."³⁰ Seeley's best-selling history, self-avowedly "haunted by the idea of development, of progress" (3), argues that English history has, for the last few centuries, primarily occurred offshore, and that England's most distinctive political innovation during that time has not been Reform or Liberalism but "a peculiarly English movement . . . [of] unparalleled expansion" (308). In this account, settler colonialism constitutes a natural extension of the English state, unified by race and language and an apparent absence of natives, cleansed too of the despotic traits associated with ruling India. Yet the smooth surface of Seeley's tendentious nationalist tale is sporadically ruptured by recognition that the expansive tendencies he describes are the centripetal force intrinsic to the coal economy. At such moments of splintering narrative coherence, steam transportation emerges as causal rather than merely catalytic in the process of invasion. Empire is impossible without coal, in other words, and we are only now waking to their joined splendors: "Perhaps we are hardly alive," Seeley writes, "to the vast results which are flowing in politics from modern mechanism" (299). The settler Empire thus functions in *Expansion of England* less as English national destiny than as a temporary "spatial fix," in David Harvey's term, for the political and cultural contradictions of extractive capitalism. Settler colonialism offers a necessary alibi to Empire, a comforting myth of limitless resources untainted by violence. Accordingly, Seeley's encomia to steam directly abut his accounts of settler polities as natural, familial, "normal": "[W]e see a natural growth, a mere normal extension of the English race into other lands, which for the most part were so thinly peopled that our settlers took possession of them without conquest. If there is nothing highly glorious in such an expansion, there is at the same time nothing forced or unnatural about it" (296). Here Gaskell's romance of the organic national community is writ large, as the antagonisms and crises of the international fossil imperium are tied up in the bow of "natural" domesticity. "The tie that holds together the parts of a nation-state," we are told, "is not composed of considerations of profit and loss, but . . . analogous to the

family bond," an expanded England proffered in an attempt (unevenly) to synthesize and contain the global violence of the carbon economy (63). Seeley places Britain at the geographic center of the discussion and posits the periphery of Empire as empty, available space, an unconsidered site of extraction and promise whose violation, forced and rapacious, is inconceivable from within the terms of his argument. Yet as the century charged toward its twilight hour, the spatial and temporal limitations imposed on British power by its dominant source of energy would become increasingly apparent. And the dissolution and anomie lurking within the carbon economy, at once the precondition and end result of the very structure of expansion Seeley advocates, would soon be impossible to ignore.

Treasure from the Earth

Concerned directly with national myth and global expansion under extractive capitalism, Conrad's *Nostromo* aims to radicalize rather than resolve the impossible dilemmas of coal form. The novel is populated with a series of characters who think along lines laid out for us by Gaskell and Seeley. On the one hand are the would-be nation-builders: European characters like Charles Gould and Martin Decoud whose cause, in their adopted homeland, is to carve stability and civil society out of a war-ravaged and serially revolutionary extraction zone. On the other hand are the theorists of endless expansion, notably represented by the American financier Holroyd, who remotely funds the operation of the San Tomé mine and is thus the meta-sovereign behind even Gould, that (oft repeated) "Rey de Sulaco." "We [Americans] shall be giving the word for everything," explains the real king, Holroyd, in a famous line: "industry, trade, law, journalism, art, politics, and religion, from Cape Horn clear over to Smith's Sound, and beyond, too, if anything worth taking hold of turns up at the North Pole."³¹ This financier's promise of an American-led universalism updates not just Seeley's Greater Britain but Cecil Rhodes's often quoted desire to annex the stars; it also signals Conrad's interest in parsing the inter-imperial or transitional moment his novel documents, at the dawn of the American Century and the waning days of British global hegemony. In the novel, this shifting geopolitical situation takes shape as plot, as the residually aristocratic Charles Gould, from England, must partner with the "Steel and Silver King" (173) in San Francisco, who actually pulls the strings on Gould's extractive enterprise.

The pawn at stake in this macropolitical struggle is the seaboard state Conrad names Costaguana. The name alludes to its richness in that early-

to-be-exploited biogenic resource—guano—and also signals that since its earliest days, this place has yielded its natural resources for the benefit of those elsewhere. The primary form of geophysical treasure in the novel is, of course (as one section title calls it), “The Silver of the Mine.” Yet a host of other commodities—gold, guano, copper, and even ox hides—are stripped from the hillsides and converted into value. It falls to Mrs. Gould to notice, just glancingly, the catastrophe on which such investment opportunities are predicated. She “had seen it all from the beginning; the clearing of the wilderness, the making of the road, the cutting of new paths up the cliff face of San Tomé” (80). And where a waterfall had once been was now, after this development, “only the memory of the waterfall”: “The tree-ferns that had luxuriated in its spray had dried around the dried-up pool, and the high ravine was only a big trench half filled up with the refuse of excavations and tailings” (79). Charles Gould, his own name echoing the metal Spanish galleons had once stripped from the territory, refers with uncertain tone to his own work as “the tearing of the raw material of treasure from the earth” (46)—albeit as he visits Italy, and tours a marble quarry. The detail confirms that the novel’s critique of extractive capitalism is comprehensive: “Tomé,” as Nasser Mufti observes, means “to take.”³² But Gould’s mission, like Thornton’s in *North and South*, is improvement. Before Gould takes over the San Tomé mine, it had fallen into disrepair:

Worked in the early days mostly by means of lashes on the backs of slaves, its yield had been paid for in its own weight of human bones. Whole tribes of Indians had perished in the exploitation; and then the mine was abandoned, since with this primitive method it had ceased to make a profitable return, no matter how many corpses were thrown into its maw. (40)

Conrad’s layered prose ensures that “the exploitation” refers syntactically to the financial kind. But the word echoes in the (physical) exploitation of native bodies under slavery. All of it adds up to what the novel calls “the sordid process of extracting metal from under the ground” (41).

Nostromo’s most unmistakable lesson may be, as Marx had long before noted, that all value begins in blood. Yet the details showing us the spectacular violence of primitive accumulation also confirm that Charles Gould’s competitive advantage—what enables him to turn a profit from this formerly unprofitable, slave-worked mine—is yet another extracted commodity, this one all but unmentioned in the novel. It is, after all, Gould’s steam-driven railroad, “dug [from] the earth [and] blasted [from] the rocks” (28), that the novel specifies is the first step in restoring the San

Tomé mine to profitability, meaning that the energy regime of coal stands as the final, if curiously spectral, material interest driving this dependency-state development narrative. Conrad gives this determining agency a ghostly presence, a semi-visibility that comes into focus most, perhaps, with the novel’s obsessive attention to “steam”: The word or its variants, such as “steamer,” appear 70 times, describing steam-driven mail boats, U.S. warships ironically named after native tribes (“Powhattan”), or the railroad crucially linking San Tomé to Sulaco. The primary usages are nautical, and like so many of Conrad’s other novels—*The Nigger of the “Narcissus”* (1897), *Heart of Darkness* (1899), and *Typhoon* (1902) in particular—*Nostromo* foregrounds the historical transition between sail and steam and uses this moralized dichotomy of maritime energy (sail good, steam bad) to critique the noisy modernity of coal-fired travel. In *Nostromo*, the two regimes come into brutal contact, literally crashing together when, in one of the novel’s key episodes, the silent and sail-driven lighter commanded by Nostromo is smashed by a chugging steamer helmed by General Sotillo (210).

The crack-up condenses into allegory the historical switch whereby an organic, romanticized imperial mode, typified by silence and sail and nature, is overtaken and indeed smashed to bits by the cacophonous modernity of a coal-fired steamer. Conrad’s ideological investment in residual energy forms again becomes legible when, in *Nostromo*’s opening pages, we learn that until the dawn of steam power, Sulaco had enjoyed an “inviolable sanctuary from the temptations of a trading world” (5), as sailing vessels and Spanish galleons were kept out of the harbor by the “atmospheric conditions” of “variable airs” (9). But these winds “could not baffle the steam power of [the Oceanic Steam Navigation Company (O.S.N.)’s] excellent fleet” (9). With the Company’s ships named for Greek gods, steam is, from *Nostromo*’s outset, construed as a hypersexualized and perversely divine force, able to pierce once-natural boundaries and ravish formerly pristine landscapes. The repeated mantra of this “Tale of the Seaboard” is that Sulaco is the “treasure house of the world” (344, 347, 351), but the treasure house is unlocked with coal.

The brutality of the novel’s steam-driven progress is manifest, and Conrad’s irony obvious. But for Gould and the European characters like Decoud and Viola who believe in the possibility of progress, the hope is that, as Gould puts it, “a better justice will come afterwards” (63). Gould’s lines about “law, good faith, order, security” requiring “material interests” to “get a firm footing” (63) could have been ripped from the pages of Seeley or any other bourgeois theorist of English imperialism. (Signaling this, Conrad has Gould give this speech in “his English get-up” [63].) It is axiomatic, in

Gould's civilizational narrative of capital, that economic exploitation must precede the establishment of legitimate government. The silver of the mine, we are told, will have a "justificative conception" (80). Until that stability arrives, however, Costaguana appears as an endless series of meaningless wars and fruitless revolutions, its would-be saviors dying in squalid shoot-outs (like General Montero), suicides (like Decoud), or absurd misunderstandings in the night (like Nostromo). Everyone in Costaguana was being killed, so Mrs. Gould hears, in "battles of senseless civil wars, barbarously executed in ferocious proscriptions, as though the government of the country had been a struggle of lust between bands of absurd devils let loose upon the land with sabres and uniforms and grandiloquent phrases" (66). Against these cycles of political violence—constitution, dissolution, and reconstitution, all in a sequence—stability is impossible: No founding myth, be it a marriage plot (as in *North and South*) or nationalist ideology (as in *Expansion of England*), can still the permanent motion of extractive international capitalism. "The arc of Costaguana's history," Mufti writes, "is all crisis with no moment of arrival."³³

Conrad's achievement is thus to radicalize the non-progressive vision Gaskell offers in *Cranford*. As in that almost formlessly episodic sequence of set-pieces, Conrad offers the antidevelopmental or properly cyclical historical model endemic to modernity's sacrifice zones as a finally narrative or formal dilemma: *Nostromo* folds the endlessness of fossil-capitalism's structure into its own narrative presentation, crystallizing coal as form. *Nostromo*'s spiraling temporal structure, that is, matches coal's fixity-splitting tendencies to the novel's narrative procedure, defeating dreams of progress and equilibrium at narrative and historical levels alike. *Nostromo*'s formal difficulties are famous. Its endless series of revolutionary failures spins and spins, as cycles of anti-teleological historical motion radiate outward and repeat, the novel compounding prolepses and analepses in nested sets of flashbacks and flash-forwards that are, for many readers, almost impossible to parse. These acrobatic temporal effects fuse time into odd and nonlinear configurations, and have driven critics to cite "[t]he novel's much discussed and often confusing time shifts," and conclude that "there is no other Conrad work . . . that flaunts problems of temporal displacement and deferral, and challenges assimilation to any specific moment 'in' time, the way this one does."³⁴ One contemporary observed that "it is often difficult to say when or where we are" in the plot, and the book's modern editors admit that it "cannot be read unless one has read it before."³⁵ ("The novel ends, in a sense, where it began."³⁶)

In its very form, then, this novel of endless revolution confirms Hannah Arendt's sense, in *On Revolution* (1963), that political overturning presents special difficulties for narrative structures dependent on closure. (Recall that *Cranford*'s final chapter, delicately ironic, is "Peace to Cranford.") For Arendt, "the modern concept of revolution" is "inextricably bound up with the notion that the course of history suddenly begins anew, that an entirely new story, a story never known or told before, is about to unfold."³⁷ Like *Cranford*, *Nostromo* translates the serialized, ruinous, and open-ended logic of carbon modernity into plot, and, like *Cranford*, discloses how a narrative infrastructure might both derive from and be implicated in the effects of the coal economy it seemingly only documents. In *Nostromo*, such moments of new beginning as Arendt describes are repeated serially, endlessly, so that the very novelty of new beginning itself becomes a perverse or traumatic repetition. For *Nostromo* no less than for *Cranford*, this futureless stasis—"sterile," as Edward Said calls it—is allegorized through an environment in which heteronormative sex is thwarted, avoided, or canceled, reproductive futurity sterilized into a parade of set-pieces.³⁸ Conrad's novel goes further than Gaskell's to suggest that this simultaneously political, sexual, and formal predicament issues from the very logic of extractive accumulation on which the political situation it documents is based: In extractive economies, no fix is possible, no stillness in sight, no viable future imaginable.

Like its sexless and often remarked hypermasculinity, then, *Nostromo*'s immense chronological difficulty derives from and in turn explains the unfixable surplus generated in extractive imperialism. Superadded to all this, the novel's structure of irony means that even when its own conclusion is heroically announced—as it is by Captain Mitchell, in the ostentatiously confident speech of national pride at the end of the novel—this apparent resolution into stability is instantly undercut, and the book's looping sequence, common to permanent political revolution no less than to psychic trauma, never does come to rest. The very grammar of Mitchell's speech, rendered in the habitual past (he "would lead some privileged passenger" [341], "would keep on talking" [341], "would talk" [342], and "would say" [343]) exposes the recycled and even endless repetition of his performance, even as the novel seems to mark the nationalist speech as a hyper-particularized individual instance, happening just once, as he (for example) "hold[s] over his head a white umbrella with a green lining" (343). When the novel refers twice to "the cycle" of Mitchell's own story (345, 350), it hints that Mitchell's reiterated or nearly reiterated discourse

is, like everything else in the novel, a repeat performance. Like Gaskell's ironized call for "Peace to Cranford," Mitchell's paean to the stable achievement of "The Occidental Republic" contains the specter of that Republic's dissolution. What this tells us is that cycles of exploitation in the sacrifice zones of Conrad's carbon modernity will never resolve into stability, however much Gould or Mitchell might dream (with *North and South*) that he has "closed the cycle" (351).

Opening the Cycle

If the most overt task of this essay has been to return to the Victorian novel with an awareness born of our own carbon-saturated atmosphere, a corollary effort has been to use the defined excluded of coal infrastructure to unsettle or reorient our own critical categories, to open a "beyond" to even our most sensitive methods for dialectical reading. Yet the point is that such vertiginous, second-order thinking is precisely what Jameson himself announces as criticism's most important task. "[D]ialectical thinking," he explains in a famous sentence, "is a thought to the second power, a thought about thinking itself, in which the mind must deal with its own thought process just as much as the material it works on, in which both the particular content involved and the style of thinking suited to it must be held together in the mind at the same time."³⁹ We are now struck by the manner in which coal seems to have also infused, invisibly yet pervasively, our critical heritage, shaping not just "literary form" but the form of thought itself, even our own, now, at the very moment we write. In a fascinating instance at the heart of the first long chapter in *The Political Unconscious*, "On Interpretation: Literature as a Socially Symbolic Act," Jameson cites Max Weber on the topic of bureaucratic society and its "iron cage," and (using Weber's ventriloquized language) inadvertently alludes to the sphere of carboniferous energy conversion we've tracked here, otherwise absent from this most sophisticated account of social mediation. The Puritan order, Jameson lets Weber tell us, "is now bound to the technical and economic conditions of machine production which today determine the lives of all the individuals who are born into this mechanism, not only those directly concerned with economic acquisition, with irresistible force. Perhaps it will so determine them until the last ton of fossilized coal is burnt" (90n). Cited, consigned to a note, and rendered in another's language, this reference to coal-based "determin[ation]" could be viewed as a Derridean supplement to our most canonical account of historical interpretation, its defined excluded. The absent cause of burned carbon reappears yet more strikingly in "Modernism

and Imperialism." There, Jameson argues that the most characteristic formal effects of modernist literature—an impulse toward mapping, spatial derangements, and a protocinematic crosscutting or montage among them—derive fundamentally from the imperial predicament, because this globalized material scene introduces a "spatial disjunction" by which metropolitan subjects become unable cognitively to grasp their world system in its totality. Constellating Conrad with Seeley and Gaskell, across genres and standard periods, has introduced us to a way of seeing how an apparently "modernist" form might not be modernist at all. That is because it derives not just from the "imperialist dynamics of capitalism proper," but from the coal-age energy sources without which those dynamics would never have been possible.⁴⁰ This new attention to energy systems might, in turn, help us appreciate why, in one of Jameson's signal exhibits of modernist form, from *Howard's End*, Mrs. Munt speeds through the English landscape on a train, frantically raising and lowering her window to avoid inhaling the residue of the fuel even Jameson cannot yet name.⁴¹

Notes

1. In his comprehensive evaluation of the role played by coaling stations in the nineteenth-century Empire, Steven Gray notes that there are more references to coconuts and coffee than to coal in the volume. "Black Diamonds: Coal, the Royal Navy, and British Imperial Coaling Stations, circa 1870–1914" (PhD thesis, University of Warwick, 2014), 17.
2. Robert Kubicek, "British Expansion, Empire, and Technological Change," in *The Nineteenth Century*, ed. Andrew Porter and Elaine M. Low, *The Oxford History of the British Empire* (Oxford: Oxford University Press, 1999), 249.
3. Richard H. Horne, "The Black Diamonds of England," *Household Words*, June 8, 1850, 248.
4. Coal's origin in plant decomposition came to be accepted in Britain between the end of the eighteenth century and the publication of Charles Lyell's *Principles of Geology* in the 1830s. Andrew C. Scott, "The Legacy of Charles Lyell: Advances in Our Knowledge of Coal and Coal-Bearing Strata," in *Lyell: The Past is the Key to the Present*, ed. Derek J. Blundell and Andrew C. Scott (London: Geological Society, 1998), 244.
5. Barbara Freese, *Coal: A Human History* (London: Heinemann, 2003), 6.
6. Freese, *Coal*, 69.
7. Horne, "Black Diamonds," 248.
8. The age of equipoise was also the age of sail; as the navy transitioned to a primarily steam-powered fleet in the latter decades of the century, expansion

became the rule. Hobsbawm notes that the 22,000 steamships in the world by 1882 were more than surpassed in tonnage by sailing ships; yet this balance would change “immediately and dramatically” in favor of steam in the 1880s. As the final section of this chapter notes, this transition is among the central concerns in Conrad’s oeuvre. E. J. Hobsbawm, *The Age of Empire, 1875–1914* (New York: Vintage, 1989), 28.

9. Benjamin Morgan, “*Fin du Globe*: On Decadent Planets,” *Victorian Studies* 58, no. 4 (2016): 610.

10. Fredric Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act* (Ithaca: Cornell University Press, 1981), 89, 99. Hereafter cited parenthetically in text.

11. Marx quoted in Raymond Williams, *Marxism and Literature* (New York: Oxford University Press, 1977), 85. As Patricia Yaeger writes, “thinking about literature through the lens of energy, especially the fuel basis of economies, means getting serious about modes of production as a force field for culture.” “Editor’s Column: Literature in the Ages of Wood, Tallow, Coal, Whale Oil, Gasoline, Atomic Power, and Other Energy Sources,” *PMLA* 126, no. 2 (2011): 308.

12. See for example, Raymond Williams, “Determination,” in *Marxism and Literature* (Oxford: Oxford University Press, 1977). Louis Althusser introduces the concept of “overdetermination,” a figure borrowed from Freud, to name the intricate and ultimately unknowably tangled set of causal factors affecting any historical configuration or event. *Reading Capital*, trans. Etienne Balibar and Ben Robert Brewster (London: Verso, 1979), 188. Williams suggests that the “levels” of social mediation cannot even properly be construed as “levels” at all because the allegedly immaterial or superstructural forms of culture are themselves material, while the “concrete” sphere that Jameson names the political is importantly shaped—we might say determined—by cultural or “superstructural” factors of all kinds. The Victorian novel, generated amidst a rapidly expanding industry for culture and shaped by advances in material production like printing presses, arguably brings this interpenetration of “culture” and “materialism” most clearly to the fore.

13. Tobias Menely, “Anthropocene Air,” *Minnesota Review* 2014, no. 83 (2014): 93–101; Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015).

14. Fredric Jameson, *Postmodernism; Or the Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991), 411.

15. Ross Barrett and Daniel Worden, “Introduction,” in *Oil Culture*, ed. Ross Barrett and Daniel Worden (Minneapolis: University of Minnesota Press, 2014), xvii.

16. Charles Dickens, *Dombey and Son*, ed. Peter Fairclough (London: Penguin, 1970), 121.

17. Nicholas Daly points out that “by the 1860s railway travel had been almost completely assimilated into everyday life.” Nicholas Daly, “Railway Novels: Sensation Fiction and the Modernization of the Senses,” *ELH* 66, no. 2 (1999): 471. In Trollope’s *Phineas Finn*, which traces its protagonist’s frequent movements between London, Ireland, and Scotland, Phineas’s steam train and steamship journeys are barely alluded to, while those modes of transport are treated as synonymous with the unremarkable: Lord Chiltern’s proposal to Violet Effingham is doomed because he “asked her to be his wife as a man asks for a railway-ticket or a pair of gloves, which he buys with a price.” Anthony Trollope, *Phineas Finn* (Oxford: Oxford University Press, 1973), 314.

18. Althusser, *Reading Capital*, 25. Jameson refers to imperial globalization but not the energy infrastructure that fueled it. *Postmodernism; Or, the Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991), 411. Our contention is that coal infrastructure is, like Jameson’s globalization, an all-but-unconceptualizable condition for phenomenological life.

19. Althusser, *Reading Capital*, 26, emphasis original.

20. E. A. Wrigley, *Continuity, Chance and Change: The Character of the Industrial Revolution in England* (Cambridge: Cambridge University Press, 1988), 68–97.

21. Timothy Mitchell, “Hydrocarbon Utopia,” in *Utopia/Dystopia: Conditions of Historical Possibility*, ed. Michael D. Gordin, Gyan Prakash, and Helen Tilley (Princeton: Princeton University Press, 2010), 120.

22. Wrigley, *Continuity, Chance and Change*, 51, 55.

23. Stephen Mosley, *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester* (Abingdon, Oxon: Routledge, 2008), 14–19.

24. Elizabeth Gaskell, *Cranford* (New York: Penguin University Press, 2005), 22, 23.

25. *Ibid.*, 170.

26. Elizabeth Gaskell, *North and South*, ed. Patricia Ingham (London: Penguin, 1995), 60. Hereafter cited parenthetically in text.

27. Freese, *Coal*, 73.

28. Andreas Malm, *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming* (London: Verso, 2016), 18, 19.

29. Catherine Gallagher, *The Industrial Reformation of English Fiction: Social Discourse and Narrative Form, 1832–1867* (Chicago: University of Chicago Press, 1985), 149.

30. J. R. Seeley, *The Expansion of England: Two Courses of Lectures* (London: Macmillan, 1883), 74. Hereafter cited parenthetically in text.

31. Joseph Conrad, *Nostromo: A Tale of the Seaboard*, ed. Jacques A. Berthoud and Mara Kalnins (New York: Oxford University Press, 2009), 58. Hereafter cited parenthetically in text.
32. Nasser Mufti, *Civilizing War: Imperial Politics and the Poetics of National Rupture* (Evanston: Northwestern University Press, 2017), 128.
33. Ibid., 118.
34. Eloise Knapp Hay, "Nostromo," in *The Cambridge Companion to Joseph Conrad*, ed. J. H. Stape (Cambridge: Cambridge University Press, 1996), 88; Peter Lancelot Mallios, "Introduction: Untimely Nostromo," *Conradiana* 40, no. 3 (2008): 214.
35. Jakob Lothe, Jeremy Hawthorn, and James Phelan, Introduction to *Joseph Conrad: Voice, Sequence, History, Genre*, ed. Jakob Lothe, Jeremy Hawthorn, and James Phelan (Columbus: Ohio State University Press, 2008), 15; Jacques A. Berthoud and Mara Kalnins, Introduction to *Nostromo: A Tale of the Seaboard*, ed. Jacques A. Berthoud and Mara Kalnins (Oxford: Oxford University Press, 2009), x.
36. Mufti, *Civilizing War*, 131.
37. Hannah Arendt, *On Revolution* (New York: Penguin, 1990), 28.
38. As Said notes, "The immobility that ends *Nostromo* is a sterile calm, as sterile as the future life of the childless Goulds." Edward Said, "The Novel as Beginning Intention," in *Beginnings: Intention and Method* (London: Granta, 1997), 135, quoted in Mufti, *Civilizing War*, 131.
39. Fredric Jameson, *Marxism and Form: Twentieth-Century Dialectical Theories of Literature* (Princeton: Princeton University Press, 1971), 45.
40. Fredric Jameson, "Modernism and Imperialism," in *The Modernist Papers* (London: Verso, 2007), 154.
41. Ibid., 158.

PART II

Form